



Baton Rouge Newsletter

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Coates Awardee Bio & Address Abstract	2
Coates Award Banquet Map	3
From the Chapter Chair's Pen	4
April Meeting Recap	4
2015 Section Contacts	8

The *AICHE Baton Rouge Newsletter* is published monthly, from September to June, by the AICHE Baton Rouge Section, 110 Chemical Engineering, LSU, Baton Rouge, LA 70803. It is distributed free of charge to members of the Baton Rouge Section of the American Institute of Chemical Engineers.

Membership Fee: \$15.00/yr.

2015 AICHE and ACS Coates Award Banquet...

Date: Wednesday, May 13th, 2015

Place: Ashley Manor
14214 Old Hammond Highway
Baton Rouge, LA 70816

Speaker: Dr. Jayne Garno, Professor, LSU Department of Chemistry

Topic: "NanoTheater"

Agenda: 6:00 PM - Social hour as guests arrive
7:00 PM - AICHE and ACS awards presented after dinner is served
8:00 PM - Coates Award Recipient Address
9:00 PM - Banquet adjourns

Cost: \$35 per person

Menu: Buffet-style selection consisting of

- Sensation Salad
- Entrees: Seafood-Stuffed Chicken Breast + Vegetarian Pasta
- Sides: Green Bean and Artichoke Casserole + Garlic Mashed Potatoes
- Desserts: Blueberry White Chocolate Bread Pudding + Deep Dish Apple Pie

RESERVATIONS

Please make your reservation with chapter secretary, William Buck, **by 5:00 PM on Tuesday, May 12th, 2015** at William.Buck@willbros.com or by calling 225-612-6224.

Professional Engineering Certification

The subject of this meeting is an acceptable activity for continuing Professional Development as defined by LAPELS and is **approved for one (1) PDH unit.**

The Baton Rouge AICHE chapter is NOT responsible for individual record keeping of PDH credits. Certificates must be obtained at the meeting by the individual.

Upcoming 2015 Events / Speakers...

07/23: 2nd Annual Young (and Young-at-Heart) Professionals' Event (tentative) at TBD

09/17: Presentation - Chris Hastings, Petroleum Market Specialist, Philadelphia Mixers at TBD

10/15: October Chapter Meeting - TBD

If you or your colleague(s) would like to give a technical presentation at an upcoming chapter meeting for 2 professional development hours (PDHs), please contact Chapter Chair, Stephen Reilly, at stephen.reilly@prosys.com to schedule a meeting date and time.

Coates Award Banquet Address Abstract...

When reduced to the size of a human hair or smaller, ordinary materials often take on extraordinary properties. For example, tinted glass in old cathedrals was made by mixing different sizes of gold nanoparticles to create an assortment of colors. We are only beginning to understand the fascinating phenomena of nanoscale materials and the potential for use in everyday life.

Nanotechnology promises advanced information processing and storage, new medical treatments, and much more. Scanning probe microscopes (SPMs) were invented in the 1980s and provide a direct view of the nanoworld at the level of individual molecules and atoms. The new measurement tools of scanning probe instruments enable sensitive measurements of material properties and forces at the nanoscale. Nanolithography can also be accomplished using scanning probe microscopes.

We have designed teaching experiments at LSU for chemistry laboratories with undergraduates. An overview of successful research projects accomplished with SPM will be described, highlighting the work of Garno's research group. The presentation will showcase student images at the nanoscale acquired with SPM.

Coates Awardee Biography...

Professor Jayne Garno joined the department of Chemistry at Louisiana State University in 2004. Her research program develops and applies new measurements with scanning probe microscopy for molecular-level investigations of chemical reactions on surfaces. She has authored 70 research articles and 9 book chapters describing studies with scanning probe microscopy. Dr. Garno chose to pursue an academic career at LSU because of the opportunity to be a part of launching students of diverse backgrounds into successful careers in chemistry. She has graduated 13 PhD students and currently directs the doctoral studies of 8 graduate students at LSU. Her program has a solid commitment for including undergraduates in research activities, as more than 50 science undergraduates have worked in her laboratory to gain first-hand experience with research.

Jayne earned her PhD in 2002 at Wayne State University in Detroit Michigan under the direction of Professor Gang-yu Liu. Dr. Garno has a BS degree in Biology from the University of Michigan, Ann

Arbor (1981) and a BS degree from Saginaw Valley State University (1992). Before that, Jayne worked the night shift as a bench chemist/water treatment plant operator at General Motors for 10 years, and attended university classes during the daytime as a part-time student. Dr. Garno had an interesting career transition, changing from an industrial position working at the scale of treating millions of gallons of wastewater each week to working with molecularly-resolved imaging at the nanoscale. She has also worked as a medical researcher under the direction of Dr. Y. K. Lau at Michael Reese Hospital in Chicago (5 years), and has worked as a chemist in an environmental laboratory in Ann Arbor (3 years). After completing her PhD studies, she won a competitive National Research Council post-doctoral fellowship at NIST, and worked in Gaithersburg, MD, with Professor James Batteas and Professor Mike Drain conducting scanning probe studies with designed porphyrins and organic thin films.



(Continued on next page)

Coates Awardee Biography (Continued)..

In 2009, Dr. Garno received two prestigious national awards, the Camille Dreyfus Teacher-Scholar award and the Presidential Early Career Award for Scientists and Engineers, or PECASE award, which is the United States government's highest honor for scientists and engineers in the early stages of their independent research careers. In 2012, Jayne became a Kavli fellow and served as a U.S. delegate at the Indonesian-American Frontiers of Science Symposium held in Surakarta. Garno was recognized by the Howard Hughes Medical Institute with a distinguished mentor award for prolific research activities with undergraduates. She has been recognized as a *Rainmaker* (Top 100 faculty of LSU) and received a commendation from the Louisiana Board of Regents for her efforts as a teacher and scholar. She won a Faculty Early Career Award from the National Science Foundation, and has been recognized as an Emerging Young Investigator by the *Analyst* and *Analytical & Bioanalytical Chemistry* journal editors and by the 2012 Gordon Research Conference on Bioanalytical Sensors. Garno also received Young Investigator Travel Awards from the Electrochemical Society, the American Chemical Society, and the Federation of Analytical Chemistry and Spectroscopy Societies (FACSS). Among 200 student poster presentations at national and international research conferences, students directed by Garno have won 40 best poster awards, largely because of the stunning views of molecular landscapes acquired with scanning probe microscopy.

Professor Garno has a passion for teaching analytical/instrumental chemistry. With a learn-by-doing philosophy of teaching, Professor Garno shuts down research activities for one week each semester to host a senior lab for chemistry undergraduates. This provides a unique opportunity for LSU students to gain hands-on experience with molecular imaging and scanning probe experiments using state-of-the-art instrumentation. In addition to teaching and redesigning lab courses, Jayne was successful in writing LSU Tech fee grants to upgrade instrumentation in the undergraduate chemistry laboratories. The Tech fee grants (\$330,000) provided essential instrumentation for teaching chemistry lab skills, including Fourier Transform Infra-Red (FTIR) spectrometers, high performance liquid chromatographs (HPLC) and a gas chromatography system with a mass spectrometer (GC/MS) that were purchased this year. Working with modern instrumentation is critical for retention and for recruiting undergraduates to chemistry careers.

Jayne participated in the planning teams for the 2012 ACS Southwest Regional Meeting (SWRM) held in Baton Rouge, organizing vendor workshops, an instrumentation expo, and nanoscience symposia. She and her students have conducted annual outreach activities (K-12) with *Super Science Saturday*, *LSU NanoDays*, as well as *Saturday Science*. Garno encourages her graduate students to develop interesting science demonstrations as peer-teaching activities. Jayne and her students have also been active in Iota Sigma Pi, the National Honor Society for Women in Chemistry, and the American Association of University Women (AAUW).



Group photo at the BASF site in Geismar, LA, for the April meeting - Check page 5 for more!

From the Chapter Chair's Pen...

As I write this column on April 23rd, 2015, I wax nostalgic on the thought that five years ago to the day, Mufeed Al-Ghumgham, the Process Controls Engineering Manager at the Saudi Arabian Fertilizer Company, offered me my first full-time job to join his staff in Jubail, Saudi Arabia. I officially accepted the offer about a month later, and my career has truly been blessed so far with some relatively-unique experiences and with some great networking connections that I don't think I would have made otherwise. The 13th-century Persian poet, Rumi, once professed, "Respond to every call that excites your spirit." Well, five years into my career, I still find process controls engineering a fascinating industry that inspires me, and I hope to answer many challenges that the field continues to present.

My nostalgia has also been emphasized by my recent trip back to Johns Hopkins University for my fifth-year college reunion, and it certainly was a whirlwind of activity catching up with friends and acquaintances! Being back on campus, I walked by Remsen Hall, named after Prof. Ira Remsen, who mentored Prof. Charles E. Coates, after whom our upcoming chapter's annual awards banquet with the Baton Rouge ACS chapter is named. I'm already excited to celebrate all the awardees' accomplishments, and it should be an enjoyable time for all! Hope to see you there!

Stephen Reilly

April Meeting Recap...

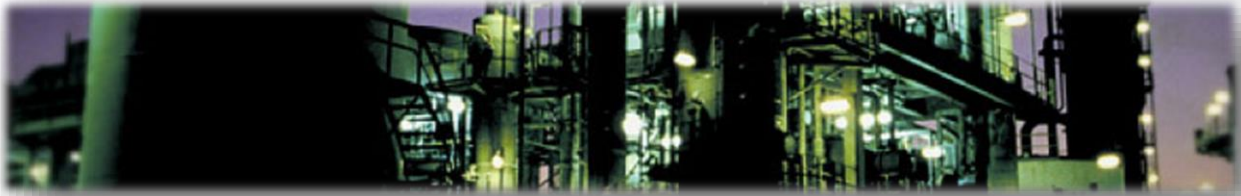
The April 2015 Baton Rouge Section meeting was held at the BASF chemical plant site in Geismar, LA. This was certainly a unique and educational experience for our members and guests. First and foremost a big "THANK YOU" goes out to the team at BASF Geismar for opening up their facility to us and feeding us a delicious BBQ dinner!

Who speaks 4 or more different languages? Who has done skydiving? Who is a Detroit Tigers fan? Those are a some of the 16 questions members were asking each other as we arrived. The goal of this ice breaker was to be the first person to identify the 16 people who could answer one of the questions. It was a fun way to meet new people. And the Detroit Tigers fan in the room was identified as Doug Stoeckle, Manager of Analytical Services at BASF Geismar, our speaker and host for the evening.

After the ice breaker, we indulged in a tasty BBQ dinner from Tee Wayne's Restaurant, compliments of BASF. While chowing down, Doug provided us with an overview of BASF and the Geismar site operations. "Verbund," a German word translated as "interconnected" is how Doug described the site. The Geismar site sits on 2,300 acres, of which over 500 are developed consisting of 22 process units. It opened in 1958. Over 1,600 people work at the site. Some of the chemical products include ethylene oxide, toluene diisocyanate, and butanediol. The chemicals made here are the building blocks for making plastics, surfactants, agricultural products, pharmaceuticals, and much, much more. After dinner and the introduction, we had the opportunity to go on a site tour. We had such a good turnout that we had to split up into two groups. After loading onto the bus and checking in with security, we headed into the plant. Doug did a fantastic job as our tour guide as he pointed out all the key pieces of equipment.

Again, we can't thank BASF enough for inviting us to their facility for the evening. If you have a chance, check out the BASF "Creator Space" site, www.creator-space.basf.com, and see how you can join industry experts in sharing, debating, and innovating toward tangible solutions to key economic, environmental, and societal challenges.

Brandon Lithgoe



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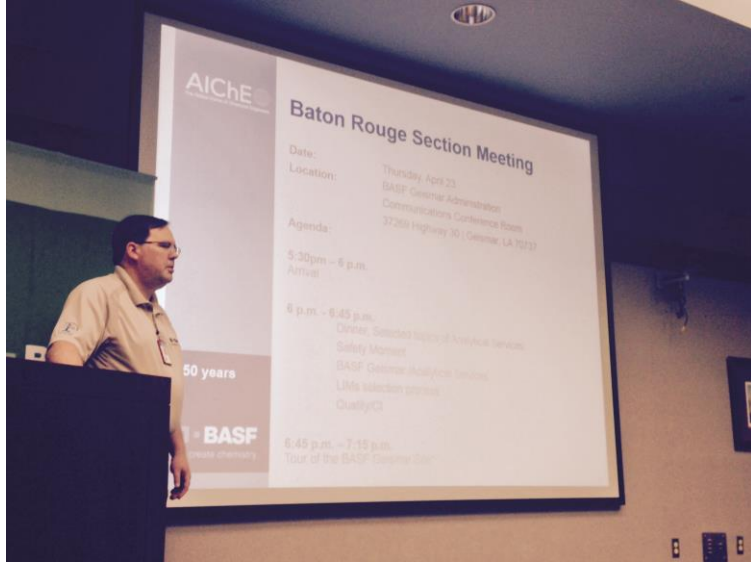
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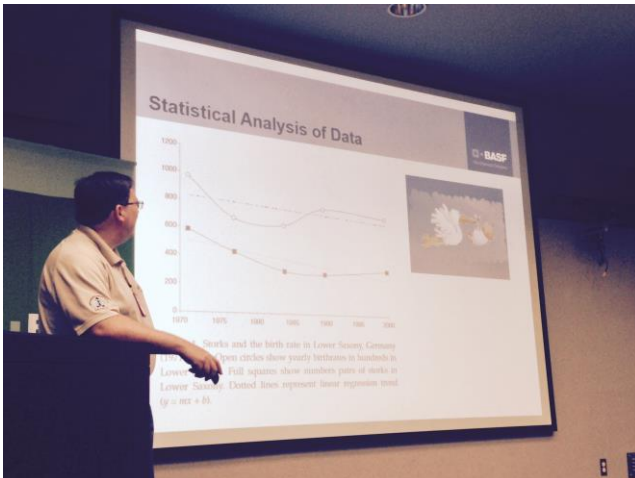
April Meeting Photos...



The chapter banner onsite + Douglas Stoeckle presenting the meeting agenda



Panorama shot during the presentation



Some observations about the weird correlations data can present + BASF noting its 150 years in business



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2015 Section Contacts

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Why Should You Join the Local AIChE Chapter?

1. It is a welcoming presence to new chemical engineers in the area.
2. It provides a neutral ground mentorship toward career directions and other life topics.
3. It facilitates a better understanding of local, state, and federal policies related to our professions.
4. It offers a smooth transition for graduating chemical engineers from LSU, ULL, and other nearby universities who start working in the area.